Office for Interoperability and Compatibility

Command, Control and Interoperability Division

EDXL Standards
Situation Reporting (SitRep)
SIG Presentation

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Command, Control and Interoperability Division
Science and Technology Directorate
February, 18, 2009

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1

Agenda

- Welcome

- The EDXL Standards Program and Process

- EDXL Standards and Status

- EDXL SitRep Status and Next Steps

- SitRep Overview

- SitRep Overarching Questions for the OASIS Process

- Questions and Discussion

Welcome Message

The DHS-OIC EDXL Standards Program is proud of our relationship with emergency response and disaster management stakeholders at all levels through our Practitioner Steering Group (PSG) and Standards Working Group (SWG), because we rely on you completely to drive priorities and requirements for systems interoperability standards. We want to continue and grow this partnership through open participation and dialog today and ongoing. We thank Avagene, Amy and the SIG for having us today.

As you know, fostering the development of practitioner-driven messaging interoperability standards through this public-private partnership is a key objective of DHS and the President's initiatives. The OIC EDXL Program has been a strong supporter not only of the practitioner efforts, but also most appreciative of the excellent work that resulted from the EIC and OASIS EM-TC's involvement in bringing forth CAP, and EDXL-DE, RM and HAVE.

Today will touch on these areas, but assume the audience has some familiarity with EDXL and the process. We will allow ample time to address your questions and comments at the end of the presentation.
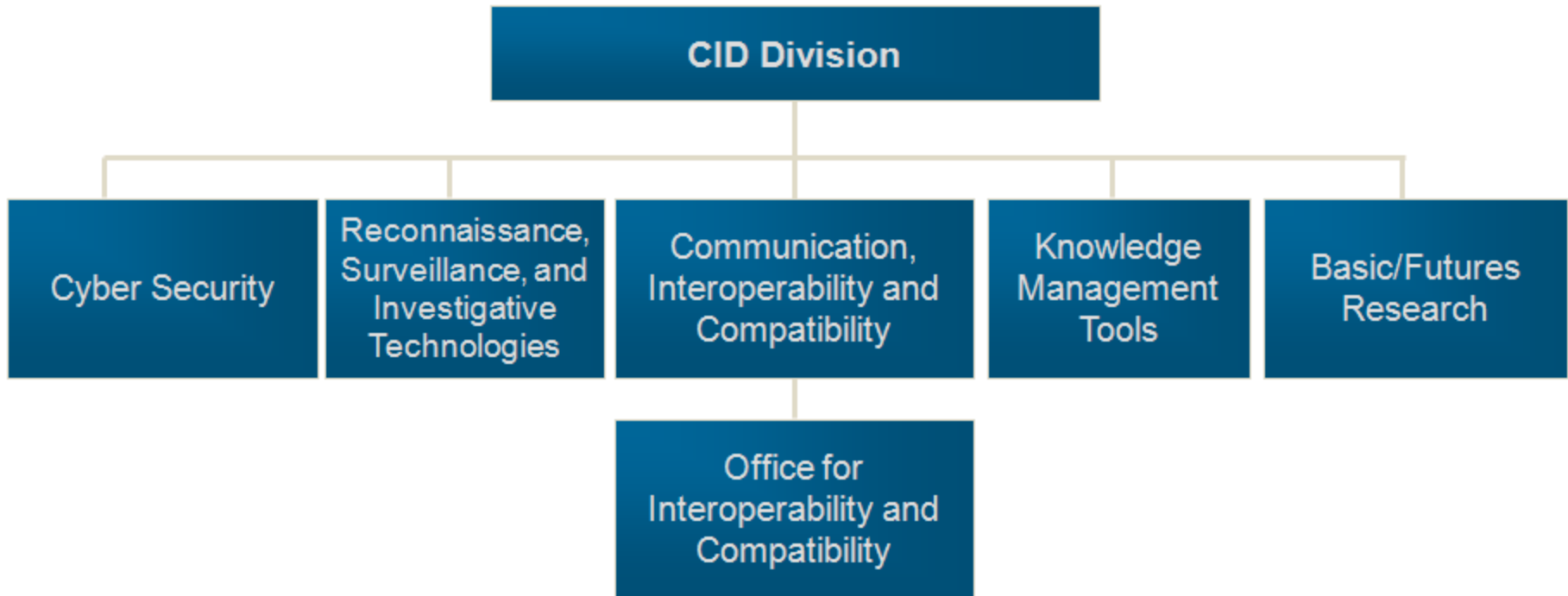
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FEMA

The Program

Managed by the U.S. Department of Homeland Security's (DHS) Science and Technology Directorate, CID delivers on its mission through five thrust areas.

Mission: Through a practitioner-driven approach, CID creates and deploys information resources—standards, frameworks, tools, and technologies—to enable seamless secure interactions among homeland security stakeholders.

The Program

Following voice interoperability programs such as SAFECOM, the OIC's interoperable messaging standards program was initiated as one of the President's e-government initiatives. This is a practitioner-driven public-private partnership to create information-sharing capabilities between disparate emergency response software applications and systems regardless of vendor or underlying technology. Its mission is to serve as the standards program within the Federal Government to facilitate local, tribal, state, and federal public safety and emergency response agencies to improve emergency response through effective and efficient interoperable data sharing.

The goal of the EDXL family of standards is to support this mission to improve emergency response and disaster management through seamless data sharing. EDXL will accomplish this goal by focusing on the standardization of specific messages (messaging interfaces) to facilitate emergency communication and coordination particularly when more than one profession or governmental jurisdiction is involved.

To date, this initiative in partnership with the EIC (Emergency Interoperability Consortium) and OASIS (Organization for the Advancement of Structured Information Standards) has developed several messaging standards. The process is driven solely by cross-profession emergency & disaster support practitioners through an OIC-sponsored Practitioner Steering Group (PSG) and Standards Working Group (SWG). This group is currently developing a systems interoperability (messaging) standard for "Situation Reporting".

EDXL Overview

- Suite of messaging standards with technical rules governing how incident-related information is packaged for exchange
- Cannot change every system / database to "speak the same electronic language
- XML-based, not data standards;
- Open Process. Practitioner-driven through the Practitioner Steering Group (PSG) and Standards Working Group (SWG)
- Cross-profession, All-hazards
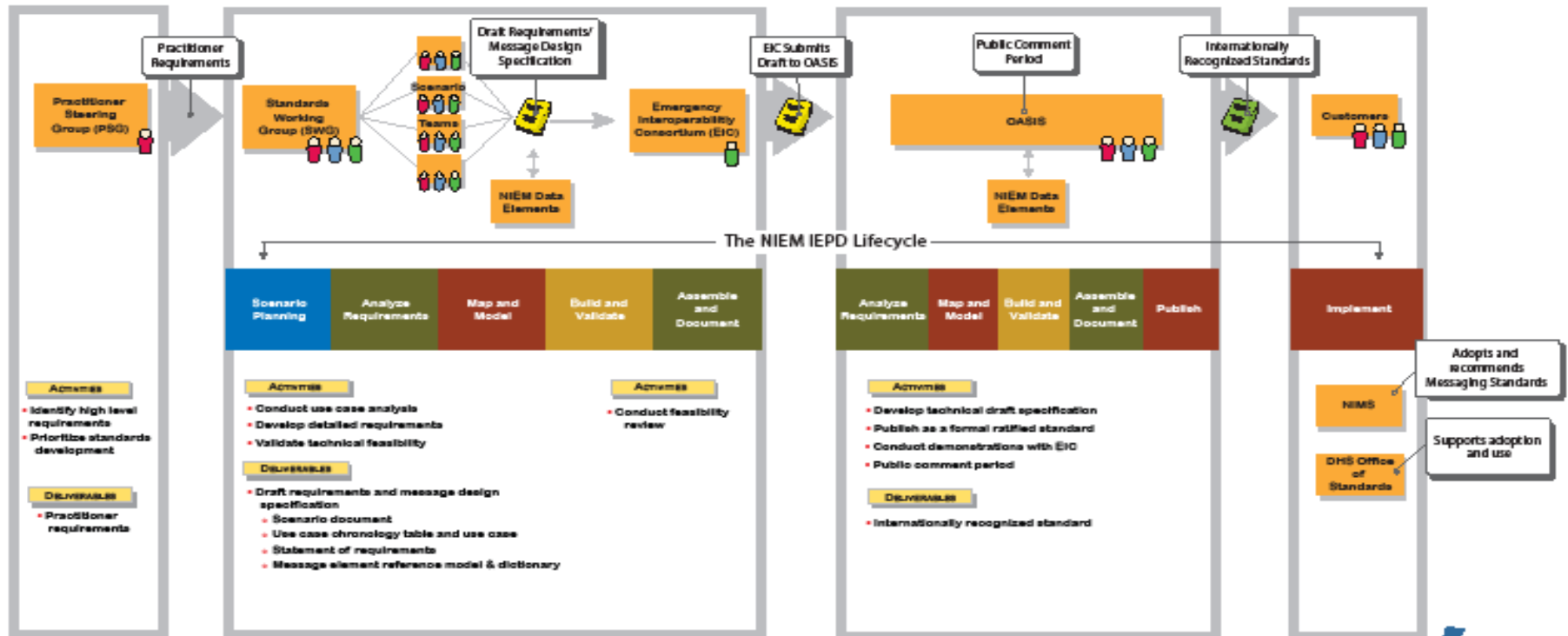
EDXL Implementation

- Systems are updated to receive and send information using these standards.
- Information is displayed in the *native system* in a user-friendly format
- Utilize Open Application Programming Interfaces
- The OIC works closely with the EIC and vendor community for effective implementation

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The Process

OIC Emergency Data Exchange Language Standards Development Process

EDXL Standards & Status

OASIS Approved EDXL Standards

Common Alerting Protocol (CAP 1.1)

Common Alerting Protocol (CAP) was the original standard which modeled this public-private partnership. CAP is planned to be formally included into the EDXL family in the future because CAP came prior to the official "EDXL" designation.

CAP was adopted as an OASIS standard in March 2004 and revised to CAP 1.1 on October 1, 2005. It provides the ability to exchange all-hazard emergency alerts, notifications, and public warnings, which can be disseminated simultaneously over many different warning systems (e.g., computer systems, wireless, alarms, TV, radio).

Distribution Element (DE 1.0)

Distribution Element (DE 1.0) was adopted as an OASIS standard in April 2006. DE provides flexible message-distribution framework for emergency information systems data sharing (A message *envelope* used to distribute different *payloads)*. Messages may be routed by specific recipients, by a geographic area, or by other flexible codes such as agency type (police, fire, etc.).

EDXL Standards & Status

OASIS Approved EDXL Standards

Resource Messaging (RM 1.0)

Resource Messaging (RM 1.0) was adopted as an OASIS standard in November 2008. EDXL-RM describes a suite of standard XML messages for data sharing among emergency and other information systems that deal in requesting and providing emergency equipment, supplies, people, and teams. RM provides a total of 16 individual standard messages providing the capability for disparate systems to perform "transactional messaging" such as a Request for Resources and Response to Request for Resources for incident preparedness, response and recovery.

Hospital aVailability Exchange (HAVE 1.0)

Hospital AVailability Exchange (HAVE 1.0) was adopted as an OASIS standard in November 2008.   HAVE specifies an XML document format that allows the communication of the status of a hospital, its services, and resources, including bed capacity and availability, emergency department status, and available service coverage. This assists hospital coordination and routing of patients to facilities for care during emergencies.

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EDXL Standards & Status

Draft EDXL Standards

Situation Reporting Standard (SitRep)

The Situation Reporting standard is in process of submission from the practitioner process to OASIS. SitReps provides a standard XML format for exchange of information gathered from a variety of sources that provides a basis for incident management decision making about the current situation, incident or event over its life-cycle, and the operational picture of current and required response in an actionable form. SitRep purpose is to guide more effective preparation, response, management and recovery through seamless information-sharing prior to, during, and in recovery from emergencies and disasters of any scale or type of hazard.

Emergency Patient Tracking (EPT) *(Proposed Name)*

Emergency Patient Tracking (EPT) is currently being defined by the practitioner requirements process. EPT provides a standard XML format for tracking and sharing patient location and treatment from the scene of an incident until admitted into a care facility. EPT purpose is to guide more effective patient care by tracking and sharing information about patient physical location, condition and treatments, routing patients to the proper facilities to receive the correct level of continued treatment, and assisting in the "finding" of patients during and after an emergency.

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EDXL-Situation Reporting (SitReps)

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EDXL-SitRep Current Status

- The SitRep Requirements and draft Messaging Specification document has completed the practitioner review period 01/12/09 to 01/30/09.

- The EDXL Standards Program and Process

- 60 comments were addressed from general to very specific in nature.

- Version 1.2 dated 02/02/09 has been approved by the DHS sponsor, Denis Gusty, the PSG chair Timothy Lowenstein and co-chair Kevin McGinnis.

- The standards package was submitted to the EIC on 02/11/09.

- Once the EIC process step is completed, the package will be jointly submitted to OASIS (around the end of March, 2009)

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EDXL-SitRep Document Structure

SitRep Requirements and draft Messaging Specification is organized into four main sections:

1.EDXL Overview section

2.Requirements Section
Specifies the scope and traceable requirements which MUST be met in order for the resulting standard to meet the Emergency Response and Disaster Management practitioner needs. Requirements are organized into:
 1.General Requirements
 2.Functional Requirements
 3.Information Requirements
 4.Conformance Requirements

3.Draft Messaging Specification Section
Though the final OASIS product will reflect improved and more detailed modeling and definition, this section provides a logical graphic and tabular representation of the standard message requirements, information needs and definitions. This section is organized into:
 1.SitRep message models
 2.Data Dictionary

4.Appendices
Appendices list practitioners / SWG participants, reference and research materials, and glossary.

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EDXL-SitRep Background

- As with previous standards efforts, the draft requirements and messaging specification effort was initiated by the PSG as the next priority after EDXL-RM.

- SitReps was developed in partnership with industry members of the Emergency Interoperability Consortium (EIC) and the Standards Working Group (SWG).

- Following research, scenario and use case team exercises and analysis tasks, the final document was developed and approved.

- Though requirements and inputs to this standard have been driven out through cross-profession emergency support practitioners and expressed in U.S.-based language and terms, the intent of this effort is to drive a public, international XML-based standard. This format is intended to be used collaboratively with other EDXL standards, and may be used over any data transmission system, including but not limited to the SOAP HTTP binding.

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EDXL-SitRep Background

Scenarios & Use Case Volunteers

Train Derailment – 6
Highway Incident – 6
Levee Break / Evac – 5
Pandemic Influenza – 5
EMS call – 10

Professions represented	Professions
911 / LE	7
Emergency Mgmt	3
EMS / Health	13
Fire	2
Transportation	2
APCO / Other	3

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EDXL-SitRep Overview - Abstract

Emergency responders are now steps closer to the seamless exchange of data that will result in enhanced incident command and response. Once implemented by emergency responders nationwide, the EDXL Situation Reporting Standard will enable more efficient decision making, coordination and use of resources during emergencies.

Typically, situation information gathering and sharing during emergency scenarios is conducted manually. This approach requires the physical entering of information into computer systems and often necessitates the re-keying of situation data into several systems. As a result, it can be difficult—and sometimes impossible—to share information across agencies and jurisdictions at the local, tribal, regional, state, and Federal levels. The EDXL Situation Reporting Standard will overcome current incident sharing obstacles by standardizing the way only valuable and usable incident data flows from a variety of sources, including citizens, emergency responders, and government officials.

When using the EDXL Situation Reporting Standard, the incident commander and emergency responders on scene have access to information about the specific situation, the current responses by other agencies or jurisdictions, and the deployed resources—delivering a full operational picture of the event. The EDXL Situation Reporting Standard will ultimately enhance the emergency response community's incident command capabilities by facilitating increased information sharing, reducing errors related to manual data entry, maximizing the use of emergency responders, and saving invaluable time.

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EDXL-SitRep Overview

- Varied terminology and definitions about this topic exist across emergency response professions; however this effort is not intended to harmonize all perspectives.

- This messaging standard will support "Situations", "Incidents" and "Events". In this context these refer to occurrences of various scales - a collection of happenings, observations and actions that have been correlated on some basis that may require resources to perform Public Safety, Emergency and Disaster mitigation, planning and preparation, response or recovery.

- However, it is important to contrast that this standard is not intended to encompass the full scope and capabilities implied by the term "Situation Awareness", with the SitRep standard providing a broad understanding of the current situation, the operational picture, and current response and resources.

- To be effective during mass incidents, a standard must be usable for day to day, local incidents.
  "Regardless of what causes a disaster, the majority of emergency response is local, and the local governing official has the responsibility for responding to the disaster, typically delegated to the local emergency management agency" (Wetterhall and Collins, 2005).

- This standard is intended to support local, day to day usage; however its value increases as incident scale increases. The SitRep standard will support local emergencies and large-scale disasters; facilitating sharing of information over the incident life-cycle including build up of comprehensive incident information as it becomes available and ongoing updates.

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EDXL-SitRep Overview

As incidents occur and "spin up", there is a need for broad information sharing and multi-agency coordination. Today, many different systems and processes collect and disseminate incident information, but there is an immediate difficulty or inability to share Incident information across local, state, regional and national boundaries.

Situation Reporting Incident Scale and Complexity
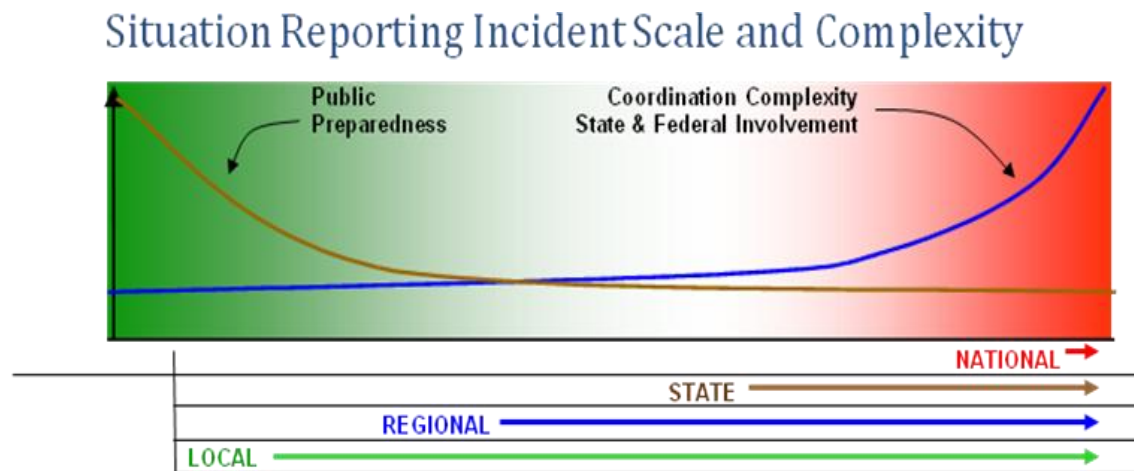
- As emergencies "spin up" there is a need for more information and multi-agency coordination
- To effectively respond to incidents, first responders and decision-makers need ...
    - **Data** – Information about the incident
    - **Interoperability** – A way to share knowledge
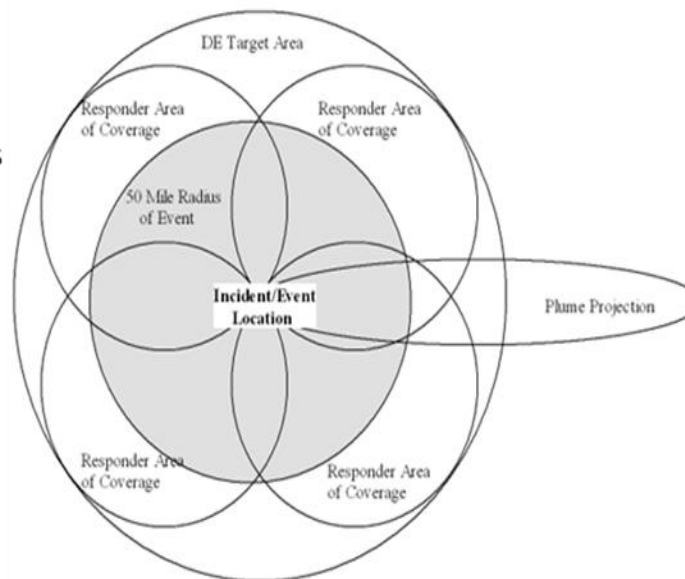
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EDXL-SitRep Overview

EDXL-SitReps will overcome current incident sharing obstacles by standardizing the way that valuable and usable incident data flows from a variety of sources, including citizens, emergency responders, and government officials. The incident commander, emergency responders on scene and external coordinating organizations have access to information about the specific situation, the current responses by other agencies or jurisdictions, and the deployed resources—delivering a full operational picture of the incident. Officials have the capability to provide select information up the chain of command and to the public.

"Emergency Response & Management will be improved by better information sharing in a more timely fashion between support entities"

Coordination & Management:

- Within Incident (primarily voice)
- Between Incident and outside entities
- Between outside entities
- To the Public
- Up the Chain of Command

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EDXL-SitRep Overview

Of all the available information that is generated today about incidents, this standard defines the most commonly needed set of information that delivers the highest value for broad information sharing.   Standard exchanges may then be implemented using components of the standard information to employ in a users native environment, system, or process.

Standard "Snapshots" of Situation Information
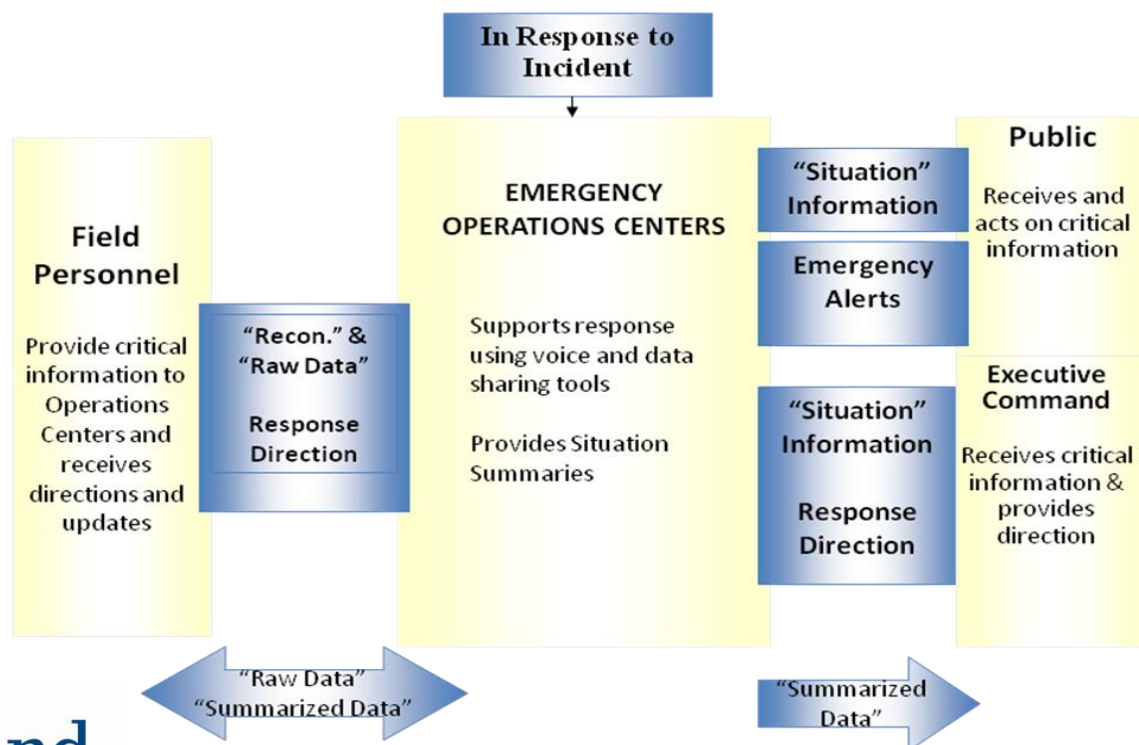
EDXL-SitRep Objectives

✓ Standardize information-sharing about the actual situation that, when communicated to decision makers, incident response organizations and the public, can form a decision-making basis to guide more effective incident preparation, response, management and recovery.

✓ Provide standardized information-sharing about the actual response and resources.

✓ Provide standardized information-sharing about incident chain-of-command and changing command structures, to ease transition of teams as incidents escalate and de-escalate, and inform authorities.

✓ Support all types of hazards.

✓ Support any incident scale, from local, day to day up to major disasters.

✓ Support full Incident Management life-cycle including mitigation, planning and preparation, response, management and recovery across the full incident life-cycle.

✓ Assist with planning and preparation for handling of patients (a HITSP requirement)

✓ Minimize manual and duplicate data entry and reduce errors by facilitating automatic population of incident command forms or other forms and data, with goals of increased accuracy, maximizing the utilization of emergency response resources, and saving invaluable time.

  ✓ Feed the situation assessment and summarization reporting process

✓ Work collaboratively with the Common Alerting Protocol (CAP) and existing EDXL standards (EDXL-Distribution Element, EDXL-Resource Messaging, and EDXL-Hospital Availability Exchange) to support the broad interoperability and information-sharing needs of the Emergency Response and Disaster Management practitioner communities.

✓ View message source and routing information

EDXL-SitRep Existing Process & Data Drivers

NIMS ICS Forms / Processes incorporated:

- ICS-201 - "Incident Briefing"

- ICS-203 – "Organizational Assignment List"

- ICS-207 – "Incident Organizational Chart"

- ICS-209 - "Incident Status Summary Report"

- ICS-215 - "Operational Planning Worksheet"

- HSOC process "SitReps" – A filtering of information *up* from FEMA to NRCC to HSOC to the White House

- Information reviewed in countless state and local incident management forms.

EDXL-SitRep Overview

EDXL Situation Reporting (SitRep) Draft Abstract Reference Model

Situation Report
Identifiers, Purpose, Report versions, Time periods, Confidence and contact information (such as "PreparedBy" and "ReportTarget").

Made From / Used to Make

Routing Header (e.g EDXL-DE)
Message Types
Message Sender
Releasability, Sensitivity,
Content containers (e.g. SitReps, OrgChart File)

* Situation Information
Situation / Incident, Information & associated events (Identifiers, descriptions, Cause, Severity, Size, Location, Contact information)

Response Information
Response Type & Definition

Casualy and Illness Summary By Responder / non-Responder & Categories:
E.g. Number of Fatalities, Hospitalized, Injury/Illness, Trapped, Missing, Evacuated, Immunizations, etc.

Situation Summary*
Significant Events, Damage Assessment, Hazmat info, Population info/status, Infrastructure, Containment, Weather, Terrorism notes, etc.

Incident Organization / Assignment
Incident Command, Org, contact info

Incident Jurisdictions*
(Jurisdictions affected and in-charge, locations, contacts)

Incident Command (IC) Declaration

Incident Decision Support information
Threat Management, Projected size, completion & costs, General Resource Needs, Operational Activities, Strategy and Plan.

Notifiable Disease Numbers
Pandemic Support, Cases etc.

Incident Resource Operational Planning
Overall Resource status and assignments by Branch, Division, Group, Location

Response Resource EDXL-RM
(equipment, supplies, people, teams)

Incident Resource Commitment Summary
Resources & Personnel by agency/org (uses EDXL-RM "Resource" Element)

"Supporting / Common" Elements
- ContactInformation: ContactInformationType (CIQ)
- Location: LocationType
- ValueListType
- (ETC.)

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23

Outstanding Issues

In addition to substantive content, three overarching themes remain for consideration by the OASIS EM-TC:

1. Evaluate whether some elements required by the practitioners more appropriately belong in the EDXL-DE rather than in a SitRep payload. Where appropriate determine strategy to address these elements.

2. Evaluate whether the number of "Required" elements should be reduced to support a "minimum sized" message for some situations.

3. The practitioners defined an approach applying one overarching "Reference Schema" with optional elements to facilitate implementer development of individual messages. However, one set of comments received questioned whether specific individual messages should be defined WITHIN the eventual standard.

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Participation

- Provide input on priorities / Recommend new standards

- Participate in Standards Working Group
  - Scenario / Use Case teams
  - Review requirements and draft specification

- Participate on OASIS TC

- Participate in OASIS public comment

- Participate in pilots and demonstrations

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Questions?